

Appl. No. 09/614,489
Amdt. Dated November 05, 2003
Reply to Office Action of August 7, 2003

REMARKS

Claims 1-24 were presented for examination. The Examiner issued a restriction requirement, and withdrew claims 9-12 from examination based on a provisional election by the Applicant. Claims 9-12 are herein cancelled without prejudice, and claims 25-28 are new. Claims 1-8 and 13-19 are herein amended.

In response to the Examiner's restriction requirement, the Applicant affirms the earlier made provisional election of claims 1-8 and 13-24. Withdrawn claims 9-12 are cancelled without prejudice, and the Applicant reserves the right to pursue such claims in one or more continuation/divisional applications.

The Examiner rejected claims 1-8 and 13-24 under 35 U.S.C. 102(e) as being anticipated by Lee (U.S. Patent No. 6,601,101).

The Applicant traverses this rejection.

As a preliminary matter, the Applicant does not concede that Lee has an effective date that is prior to the Applicant's date of invention. However, in order to move this case to allowance, the Applicant will now discuss the deficiencies associated with Lee.

In order for Lee to anticipate the claimed invention, Lee must disclose or otherwise suggest each and every limitation recited in the claims. MPEP § 2131. Lee fails to satisfy this standard.

The Applicant has amended the claims claim 1-8 and 13-19 to correct various informalities (typographical errors and oversights), and to more clearly define the claimed invention given the benefit of a fresh perspective. The Applicant notes that the amendments are not intended as narrowing amendments. Rather, the amendments are intended to broaden the scope of the originally filed claims, or to at least maintain that scope by expressly stating that which was previously implied.

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The Applicant's independent **claim 1** now recites, in part, a "method for field replacement of networked devices, comprising: detecting a failed networked device; ... locating a canonical location of said functioning networked device after said functioning networked device is installed to replace said failed networked device, wherein a port number of a managed switch operatively coupled to said functioning networked device represents said canonical location;"

Independent **claim 13** now recites, in part, a "method for determining a canonical location for a failed network device, comprising: ... detecting a failed network device having a known address; processing said known address to determine a corresponding canonical location of said failed network device, wherein a port number of a managed switch operatively coupled to said failed network device represents said canonical location;"

Independent **claim 20** recites, in part, an "apparatus for the automatic configuration of networked devices, comprising: ... a means of detecting said networked devices; a means of determining a canonical location of said networked devices; and a monitor agent connected to said network interface, wherein said monitor agent ... maintains a list of each said IP address and each said MAC address."

Independent **claim 25** recites, in part, a "system for the automatic configuration of networked devices, comprising: ... a monitor agent ... adapted ... to maintain a list including an IP address for each of the network devices; wherein the monitor agent is further adapted to request a port number associated with a particular network device using a MAC address of that device, ... thereby enabling the monitor agent to determine a canonical location of the particular network device.

Thus, the Applicant's claimed invention locates or otherwise determines a "canonical location" of a networked device as recited in each of the independent claims. The method of independent claims 1 and 13 defines that a port number of a managed switch operatively coupled to the networked device represents the canonical location. Likewise, the managed switching device of independent claim 25 is adapted to respond to the monitor agent by providing the requested port number, thereby enabling the monitor agent to determine a canonical location of the particular network device. In addition, independent claims 20 and 25 further define a monitor agent that maintains a list including addresses (e.g., at least one of an IP and a MAC address) for

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each of the network devices.

In contrast, Lee discloses hand-off protocols that are transparent to a network client. In particular, Lee discloses a purpose-built switch that is used as a "virtual storage device" configured to intercept and alter communications between a client and target devices. (e.g., Abstract; col. 1, lines 18-19; col. 5, line 66 to col. 6, line 4; Figures 1A-B). The switch is "purpose-built" in that it is specifically adapted to carry out Lee's hand-off protocols. Lee's purpose-built switch effectively operates as a proxy which allows clustered devices 130, 135, 236 to have their workload adjusted without the detail of these clustered devices being made visible to the client 110. (col. 6, lines 39-60; Figure 2A-B)

In order to achieve this, Lee forces the communication intended for all devices (130, 135, 236) to be handled by a single processing element, which Lee refers to as a switch 120. Lee's switch thus has the opportunity to view the content of all messages exchanged between the devices and the clients, and is able to adjust the contents of such messages, giving the impression to the clients that the cluster continues to function even when it is undergoing internal reorganization. To perform the necessary alterations to the messages, and give the illusion that the "cluster" continues to function while its internal components are being adjusted, and still to be able to use inexpensive commodity network storage as the subcomponents being replaced, Lee's switch needs to be able to perform 'stateful inspection' of the Transport Control Protocol (TCP) traffic. In deed, much of the technical description disclosed by Lee concerns the fields in the TCP message packets which must be recorded and substituted in order to accomplish the proxy function.

The Applicant can find no occurrence where Lee discloses or suggests determining a canonical location of a network device as recited in the claims 1-8 and 13-28. A "canonical location" is the result of a port query to a managed switch (e.g., such as used in RFC 1493). Nor can the Applicant find any occurrence where Lee discloses a "managed switch" as recited in claims 1-8, 13-19, 23, and 25-28. A "managed switch" is a well-known term of art, and is a switch which includes a management entity conforming to reporting requirements of a particular standard (e.g., such as RFC 1493), and which therefore specifically may be interrogated to determine which port of the switch was used recently to receive a message from a particular MAC address. The Applicant further submits that the switch Lee has disclosed would not be

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considered a "managed switch" or "managed switching device" as these phrases are understood by those skilled in the art. Nor can the Applicant find any occurrence where Lee discloses a "monitor agent" that maintains a list including addresses (e.g., at least one of an IP address and a MAC address) for each of the network devices as recited in claims 20-28. Simply stated, Lee is solving a very different problem (performing load balancing transparently to a client) than that solved by the claimed invention.

In addition, the Applicant has reviewed each of the sections in Lee cited by the Examiner. For at least the following reasons, the Applicant further submits that the claimed invention is patentably distinct over Lee.

With regard to claim 1, the Examiner cites abstract, figures 1A, 1B, 2A, and col. 5 line 48 to col. 6 line 38 as disclosing "detecting a failed networked device." The referenced paragraphs do not concern the case when a device has failed. To the contrary, Lee's disclosed "handoff" of functionality from one device to another requires that both devices be operable at the time of the handoff. Lee discloses: "Optimally, a handoff will occur at a point in system activity when the cluster to client communication is relatively idle. This reduces latency in communications with the client." (col. 6, lines 28-31) Significantly, note that if there was a failed device, then the result is simply that no hand-off or load sharing is allowed to take place. (col. 6, lines 17-18) There is, however, no instance where a "functioning networked device" is installed to replace a "failed networked device" as recited in the Applicant's claim 1. Rather, Lee discloses that if it is determined that another device in the cluster is "better suited to handle the client request", then a handoff to that device is initiated. (col. 7, lines 11-13; Figure 3) Otherwise, no handoff takes place.

The Examiner cites figure 3 and col. 6, line 39 to col. 7, line 55 as disclosing "locating a canonical location of said functioning networked device." Simply stated, the cited sections make no reference to a "canonical location" as defined in the Applicant's claims. In addition, the Applicant notes that the use of the term "location" by Lee has no relation to concepts of physical network wiring or the like, but rather is used in the negative, to explain the concept of "load balancing." (col. 19, line 63 to col. 20, line 4) For example, Lee discloses that the location of data being processed can be used to determine whether a handoff is appropriate. In particular, Lee teaches that a "handoff may be determined appropriate once data returned to the client from a

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location other than the first device has reached a predetermined threshold.” (col. 7, lines 17-25). Thus, Lee is using the term location in a *negative* or *relative* sense, to merely indicate “locations other than the first device.” Lee is not, however, using the term location in an *absolute* sense, to identify a particular canonical location as recited in the Applicant’s claims.

The Examiner cites col. 10 line 13 to col. 11 line 46 and col. 20 lines 17-57 as disclosing “issuing an IP address to said functioning networked device, wherein said IP address is identical to the IP address of said failed networked device.” The referenced sections mention the use of IP addresses only in the sense of a functioning device (the result of the handoff) to the client, and not issuing the desired IP address to a newly installed device itself, as recited in claim 1. Furthermore, and as previously stated, Lee does not take into account the possibility of failure or replacement of any of the participating devices. Thus, Lee cannot issue an IP address that is identical to the IP address of a failed networked device. If Lee did so, then two or more devices in Lee’s cluster would have the same IP address, which is not a valid configuration. Indeed, Lee expressly teaches that the “endpoint option is used to provide the client IP address to the second device (not IP address of the first device).” (col. 10, lines 31-33). Clearly, Lee does not disclose issuing a previously used IP address. Rather, Lee’s first and second devices must have different IP addresses.

With regard to claims 2, 3, and 5, the Examiner cited col. 6 lines 6-65 and col. 15 line 27 to col. 16 line 50 as disclosing the use of ARP requests (e.g., unicast or periodic). The Applicant has reviewed the cited sections and cannot find any occurrence of the term Address Resolution Protocol (ARP). To that end, Lee does not appear to disclose detecting failure of network devices by using ARP or PING. The Applicant understands the cited sections as concerned with the internal detail of handling of transaction sessions successfully initiated with one functioning target, but then made subject to handoff to another functioning target, all in the name of load balancing.

With regard to claim 4, the Examiner cites col. 10 line 13 to col. 11 line 46 and col. 20 lines 17-57 as disclosing “notifying maintenance personnel of said failed networked device.” Simply stated, the referenced paragraphs make no mention of notifying maintenance personnel or any other personnel as recited in Applicant’s claim 4. In Lee, there is only communication between the client, switch, and clustered devices, for the purposes of carrying out Lee’s handoff protocol.

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With regard to claim 6, the Examiner cites col. 9 line 7 to col. 10 line 64 and col. 13 line 55 to col. 14 line 65 as disclosing "determining a MAC address for said functioning networked device; and requesting a port number for said MAC address from said managed switch." The only reference to MAC address in Lee (col. 14 line 62) is when advising a client about the IP or MAC address of a target, as part of an initialization process, and where the information is transported using the DHCP protocol. However, there is no reference to requesting or otherwise finding a port number for that MAC address, or determining a canonical location as recited in the Applicant's claim 6.

With regard to claim 7, the Examiner cites col. 9 line 7 to col. 10 line 64 and col. 13 line 55 to col. 14 line 65 as disclosing "identifying a plurality of target devices at said canonical location; and comparing said canonical location of said functioning networked device with a database containing information of all said networked devices to isolate a single failed networked device at said canonical location." Simply stated, the referenced paragraphs do not disclose or otherwise suggest a plurality of target devices, a database, or reference to such a database, let alone using such a database to isolate a single failed networked device at that particular canonical location.

With regard to claim 8, the Examiner cites col. 9 line 7 to col. 10 line 64 and col. 9 line 23 to col. 10 line 51 as disclosing "issuing said IP address is suppressed if unable to isolate to a single failed networked device." As previously stated, Lee (including the referenced paragraphs) does not refer to the issuing of an IP address to a device, where the issued IP address is identical to the IP address of a failed networked device. As such, Lee also fails to disclose the suppression of such issuing. Further, note that Lee fails to disclose or suggest the isolation of a single failed networking device.

With regard to claim 13, the Examiner cites the abstract, and col. 9 line 7 to col. 10 line 64 as disclosing issuing a MAC address request for each of one or more networked devices. Simply stated, the referenced paragraphs do not refer to MAC address at all, let alone issuing requests (e.g., MAC address or PING requests) to confirm each device is alive, as now recited in amended claim 13.

The Examiner cites the abstract, figure 1B, 2A, and col. 5 line 48 to col. 6 line 38 as disclosing "detecting a failed network device" and "processing said known address to determine

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a corresponding canonical location of said failed network device." As previously explained in reference to claim 1, Lee fails to disclose detecting of a failed network device, and determining a canonical location of that failed device. In addition, the cited sections make no reference to processing known addresses (e.g., such as known MAC or IP addresses), to determine a canonical location (of the failed device) as represented by a port of a managed switch, as now recited in claim 13.

The examiner cites col. 10 line 13 to col. 11 line 46 and col. 20 lines 17-57 as disclosing "logging said MAC address, said canonical location, and an IP address for said failed network device." Simply stated, the referenced paragraphs make no reference to MAC addresses or canonical locations, or to the logging of anything.

With regard to claim 14, and as previously stated in reference to claims 2, 3, and 5, the Applicant can find no occurrences where Lee mentions or suggests the use of the ARP protocol or PING requests for anything.

With regard to claims 15-17, the Examiner cites col. 9 line 7 to col. 10 line 64 and col. 13 line 55 to col. 14 line 65 as disclosing the detecting of a failed network device "based on non-response" to a MAC address request, and "notifying maintenance personnel" of the failed network device, and issuing a request "periodically." Again, the cited sections make no mention or suggestion of detecting device failure, or notifying personnel, or issuing periodic requests, such a MAC address or PING requests.

With regard to claim 18, as previously explained in reference to claim 7, Lee fails to disclose or otherwise suggest a database, let alone using such a database to match a known address to at least one of a MAC address and an IP address listing in the database, and identify a corresponding port number listing, so as to determine the canonical location of a failed network device. Nor does Lee disclose or suggest, as previously explained, the situation where a port number listing represents the canonical location of a plurality of target devices, and the IP address of a failed network device is determined by locating a single failed target device at said canonical location, as recited in claim 19, which now depends from claim 18. The Applicant notes that the sections cited by the Examiner, including figures 4A, 4B, 5, col. 9 line 7 to col. 10 line 64, and col. 13 line 55 to col. 14 line 65, fail to disclose or suggest a database or MAC address. As previously stated, the only reference to MAC address (col. 14 line 62) is when

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advising a client about the IP or MAC address of a target, as part of an initialization process, and where the information is transported using the DHCP protocol. However, there is no reference to matching a known address (e.g., MAC and/or IP) of a failed network device to one of the listings in the database, thereby identifying a corresponding port number listing as recited in the Applicant's claims 18 and 19.

With regard to claims 20-24, the Examiner cites the same passages cited in reference to one or more of claims 1-8 and 13-19. As such, the previous applicable discussion equally applies here. For example, Lee fails to disclose or suggest "a means of determining a canonical location" of a networked device as previously explained. Nor does Lee disclose a monitor agent adapted to: 1) issue "an IP address to each" networked device, and to 2) record "a MAC address for each" networked device, and to 3) maintain "a list of each" IP address and MAC address. As previously explained, Lee simply does not discuss or even indicate a need for such a "list" or using a "MAC address" as recited in the claimed invention.

The Applicant has added claims 25-28, and submits that these claims are also patentably distinct over Lee for reasons as discussed herein. For example, Lee fails to disclose a "monitor agent" that is adapted to 1) "maintain a list including an IP address for each of the network devices" and to 2) "request a port number associated with a particular network device using a MAC address of that device" from a managed switch. Thus, the monitor agent can determine a canonical location of the particular network device.

For at least the reasons stated herein, the Applicant submits that claims 1-8, and 13-28 are patentably distinct over the references of record. As such, the Applicant respectfully requests that the Examiner withdraw this rejection.

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Statement of the Substance of Interview

On October 7, 2003, the Examiner granted the Applicant's undersigned attorney the courtesy of an telephonic interview to discuss an issue with the Office Action mailed on 8/7/03. In particular, some of the sections cited by the Examiner did not appear to correspond to the applied patent (U.S. Patent No. 6,601,101). The Examiner indicated this was an accident, and agreed to review the Office Action, and to correct it as necessary. The Applicant further noted that an additional patent (U.S. Patent No. 6,392,990) was included in the Office Action, but not cited on the Examiner's PTO-892 form. **The Applicant respectfully requests the Examiner to acknowledge this additional patent in his next Office Action.**

The Applicant believes the above amendments and remarks to be fully responsive, thereby placing this application in condition for allowance. No new matter is added. Favorable action is solicited. The Applicant kindly invites the Examiner to contact the undersigned attorney by telephone, facsimile, or email for quickest resolution, if there are any remaining issues.

Respectfully submitted,



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